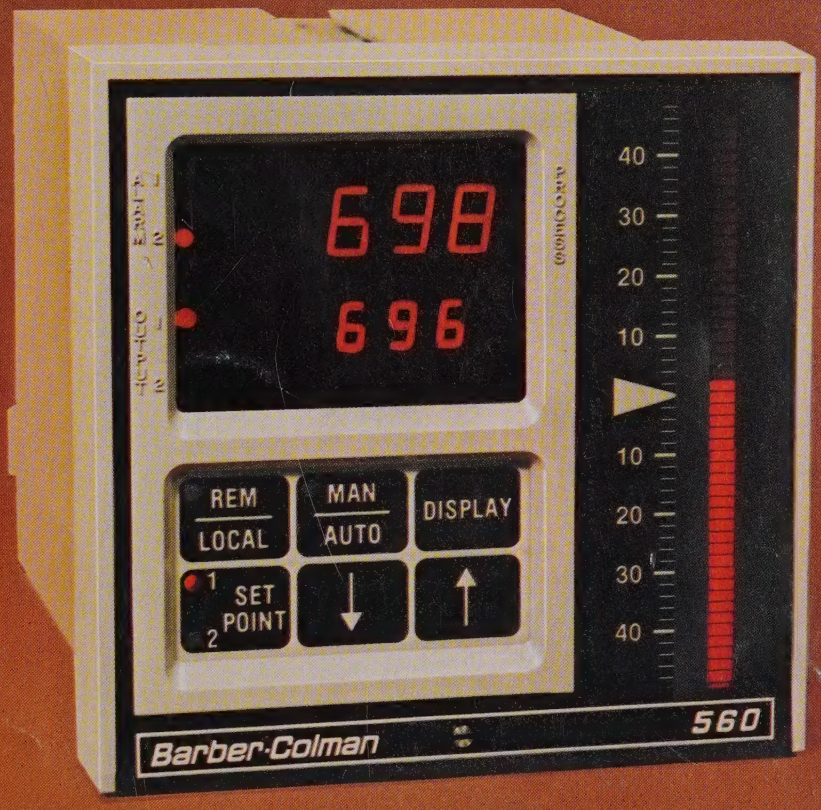
BARBER COLMAN COMPANY

560 Process Controller



Single-Loop, Microprocessor-based Controller

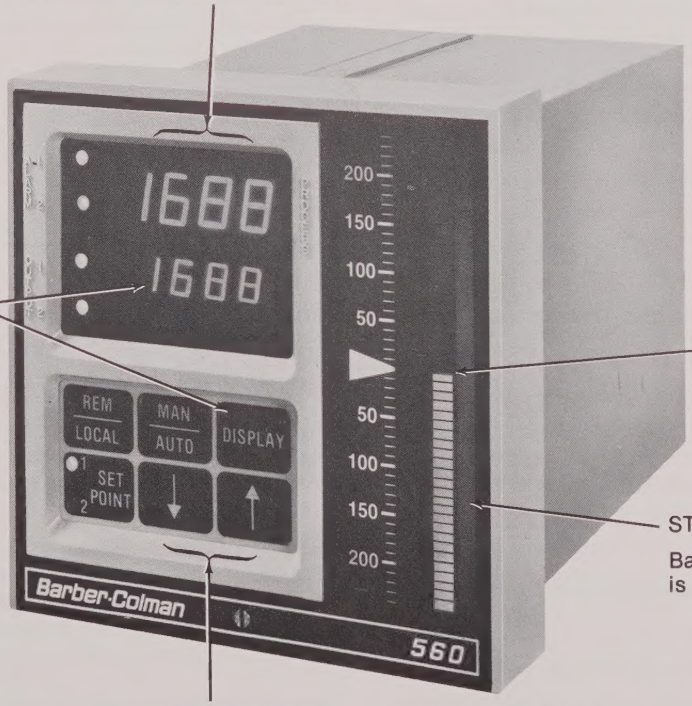
560 SERIES DIGITAL SETPOINT CONTROLLER

A Microprocessor Controller For Process Heating Applications

- ☐ **Digital Display of Process and Setpoint**
- ☐ **Data Entered Through Sealed Keyboard**
- ☐ **Electronic Keyboard Lock Minimizes Unauthorized Changes of Setpoint**
- ☐ **Thermocouples Digitally Linearized**
- ☐ **All Standard Control Forms and Outputs**
- ☐ **Deviation, Process, and Deviation Band Alarms**
- ☐ **Front Panel Calibration**
- ☐ **Non-volatile Memory — no battery backup required**

Bold 4-digit PROCESS VARIABLE INDICATOR

This picture shows Display Option 3 Features.



Alternately press the DISPLAY Key to cause either Percent Output or Process Setpoint to appear on the Bottom Indicator

Deviation Meter is shown at Zero Deviation

STATUS AT A GLANCE!

Bar Graph Deviation Meter is Light Emitting Diodes

SETPOINTS and TUNING CONSTANTS

Quickly changed by means of the ↓ (Decrease) and ↑ (Increase) Keys

Read/Revise (Dec) Jan 25

560 SERIES CONTROLLER

The Series 560 Controller is a single zone, stand alone, microprocessor based industrial controller. It is totally self-contained and accepts signals directly from thermocouples.

All common National Bureau of Standards listed thermocouples can be accommodated and all are linearized to provide high accuracy over the recommended operating temperature range.

The controller outputs voltage and current level signals for direct control of SCR Power Controllers, Contactors and other devices in addition to providing contact closure and solid state switching signals.

The standard control forms of proportional, automatic reset, and rate are available. Time proportioning outputs provide proportional switching.

Tuning Constants and instrument calibration are front panel adjusted. Digital Setpoint and Process Indication is standard. On Command, the same digital indicator displays the Tuning Constants.

The 560 Series Controller is designed for industrial environments and features gasketed cases, and sealed operator keyboard switches.

CONTROL MODE OPTIONS

The three Control Modes are ON-OFF, Proportional, and the combination of Proportional, Reset, and Rate Actions (Proportional, Integral and Derivative Actions).

The Proportional Action is a continuous linear relationship between the output and the input within the proportional band.

With Automatic Reset (Integral) Action, the output of the controller is proportional to the time integral of the input. This action prevents offset in processes where severe and frequent load changes occur. Reset Windup Inhibition is included with Reset Action to control overshoot by inhibiting reset action during warmup or cooling time. Reset Windup Inhibition is particularly desirable in batch processes where large step changes are likely.

With Rate (Derivative) Action the output of the controller is proportional to the rate of change of the input. Rate Action corrects the output proportional to the rate of change of a sudden upset, appreciable transfer lag, or a small to moderate amount of dead time.

SINGLE OUTPUT CONTROLLERS

Single Triac Switching Output Controllers

5611-0 ON-OFF Output

56X1-0 Time Proportioning Output

These controllers have solid state Triac Switching Outputs rated 125VA at 120Vac and 250VA at 240Vac. Any voltage from 24Vac to 240Vac can be switched but the voltage switched must be the same phase as the instrument power supply.

Single 10A Relay Switching Output Controllers

5612-0 ON-OFF Output

56X2-0 Time Proportioning Output

Controllers have an SPDT, form C, relay switching output for resistive loads rated either 10A at 120Vac or 5A at 240Vac. Output rating for inductive loads is 50VA.

The controllers above switch small electric heaters, cooling solenoids, electromechanical contactors, and the Barber-Colman Series CB11 and CB13 Solid State Contactors.

Single Current Output Controllers

56X3-0 4–20mAdc Output into 0 to 750 ohm load

56X4-0 0–10mAdc Output into 0 to 1500 ohm load

The constant current output of these reverse acting controllers decreases as the input signal increases. The two output terminals are short circuit protected and isolated. Either terminal can be grounded.

The current output will drive instruments such as the Series 658 Current-to-Position Converters for Electric Actuators, and the CB41 and CB43 Zero Angle Fired Power Controllers. The 0–10mAdc output will drive the Series 620 Power Controllers for control of resistive or transformer loads.

Single Voltage Output Controllers

56X5-0 0–10Vdc Output

The 0–10Vdc output of these reverse acting controllers will drive any resistive load over 2000 ohms, 5mAdc maximum current. This single voltage output will drive variable speed fans, blowers, and single phase contactors.

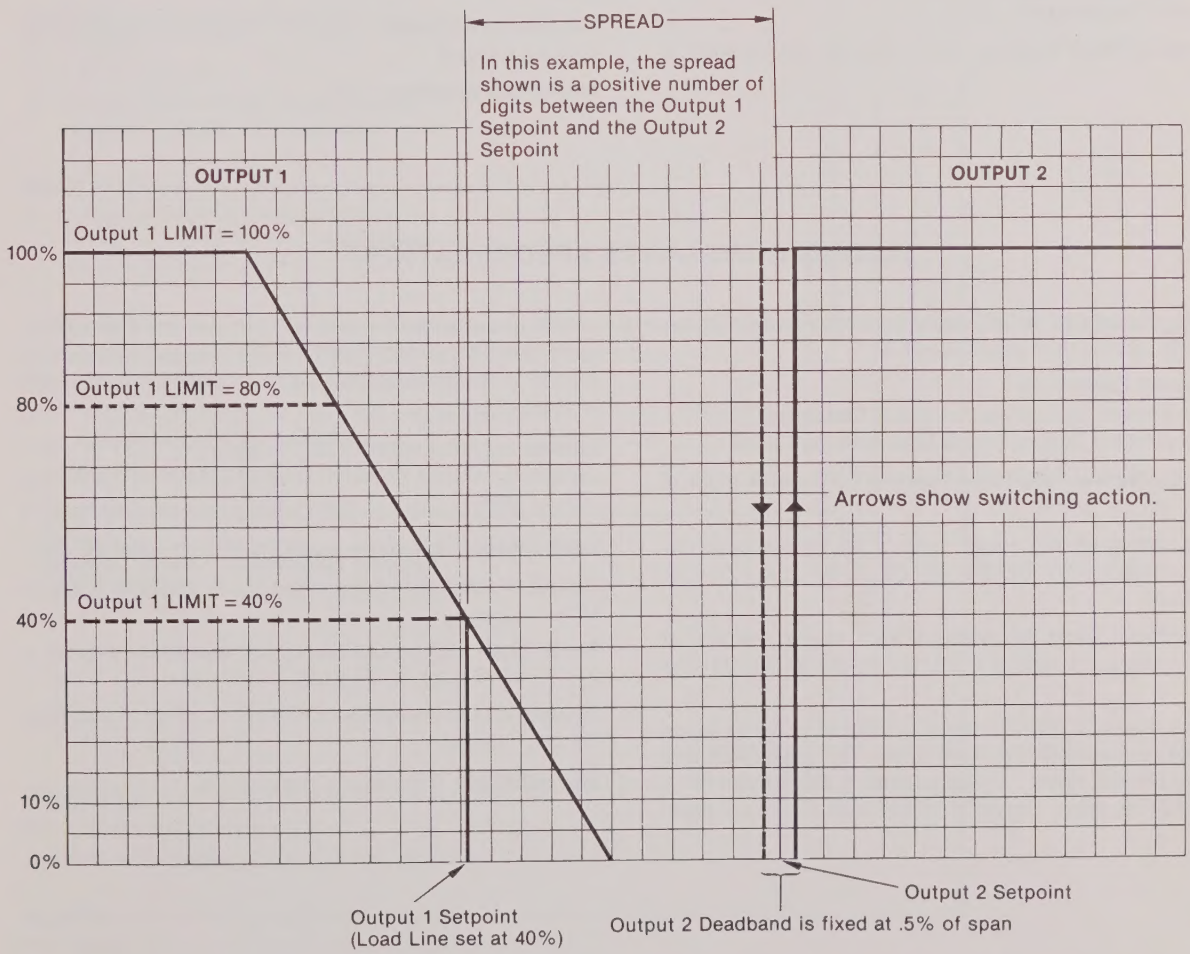
ALL SINGLE OUTPUT CONTROLLERS ARE SHIPPED WITH A REVERSE ACTING OUTPUT, WHICH CAN BE CHANGED TO DIRECT ACTING BY MOVING A JUMPER.

DUAL OUTPUT CONTROLLERS

While these models are general purpose instruments, they are especially suitable for metal treating. The reverse acting ON-OFF switching action can be changed to direct acting by moving a jumper. Separation of the two outputs is adjustable by means of the SPREAD Adjustment Ranges ±511 digits from the Output 2 Setpoint. The OUTPUT 1 LIMIT is adjustable from 10 to 100%. Outputs are described above.

56X1-1	Triac & Triac ON-OFF Switching
56X1-2	Triac & Relay ON-OFF Switching
56X2-1	Relay & Triac ON-OFF Switching
56X3-1	4–20mAdc Reverse Acting & Triac ON-OFF
56X3-2	4–20mAdc Reverse Acting & Relay ON-OFF
56X4-1	0–10mAdc Reverse Acting & Triac ON-OFF
56X4-2	0–10mAdc Reverse Acting & Relay ON-OFF
56X5-1	0–10Vdc Reverse Acting & Triac ON-OFF
56X5-2	0–10Vdc Reverse Acting & Relay ON-OFF

DUAL OUTPUT CONTROLLERS


SPREAD
In this example, the spread shown is a positive number of digits between the Output 1 Setpoint and the Output 2 Setpoint
OUTPUT 1
OUTPUT 2
Output 1 LIMIT = 100%
100%
Output 1 LIMIT = 80%
80%
Arrows show switching action.
Output 1 LIMIT = 40%
40%
10%
0%
Output 2 Setpoint
Output 1 Setpoint
(Load Line set at 40%)
Output 2 Deadband is fixed at .5% of span

Control Action for Dual Output Controllers

GENERAL SPECIFICATIONS

Thermocouple Sensors Any span within the range from 8 to 64mVdc. Cold junction Compensation. The standard upscale TCB can be jumper changed to downscale TCB. For thermocouple break on upscale TCB, the word HIGH is displayed. For thermocouple break on downscale TCB, the word LO is displayed.

Source Resistance 0 to 1000 ohms with less than .25% shift in calibration.

Sample Time 2 Samples per second.

Input Reference Ground or floating.

Setpoint Stored digitally in non-volatile memory and changed by ↑ (Increase) and ↓ (Decrease) Keys.

Reset Windup Inhibition Inhibits Reset Term when output is at zero or maximum.

Reference Accuracy ±(.25% of reading +1 LSD)
Representative conformal curves shown on page 7.

Reference Operating Conditions
Ambient Temperature: 25°C.

Operating Power Supply: 120 or 240Vac, ±1%, 60Hz.

Rated Operating Conditions
Ambient Temperature: 0 to 55°C.

Operating Power Supply: 120 or 240Vac, +10%, −15%, at 60Hz; or 110 or 220Vac, ±10%, at 50 Hz, by terminal selection.

Humidity: 0 to 70% RH.

Position (tilt): Any position.

Common Mode Rejection: 140 decibels.

Maximum Common Mode Voltage: 120Vac r.m.s.

Series Mode Rejection: 60 decibels.

Maximum Series Mode Voltage: 5 times span.

Extreme Operating Conditions
Ambient Temperature: −18°C to 65°C.

Operating Power Supply: Nominal line voltage ±15%.

Humidity: 0 to 90% RH.

Line Voltage Stability +10% or −15% change in line voltage will not shift control point by more than ±0.1% of span.

Temperature Stability ±6uV/°C maximum, including cold junction tracking.

Power Consumption 15VA.

TUNING CONSTANTS SPECIFICATIONS

Tuning Constants Stored digitally in non-volatile memory and changed by front panel switches.

Controller Calibration
CAL 1 position: Calibrating the A to D Converter.
CAL 2 position: Calibrating the Cold Junction Circuit.

Rate (Derivative) Adjustable from 0 to 7 minutes in steps of 0, .02, .05, .1, .5, 1, 3 and 7.

Reset (Integral) Adjustable from 0 to 20 Repeats Per Minute in steps of 0, .02, .04, .06, .08, .1, .2, .4, .8, 1, 2, 4, 8, 10 and 20.

Proportional Band Adjustable from 1 to 200 Percent of Span in steps of 1, 2, 4, 6, 8, 10, 15, 20, 30, 50, 75, 100 and 200.

Alarms 1 and 2 Alarm setpoint displayed in Setup Mode and set by means of the front panel ↑ INCREASE and ↓ DECREASE Keys. Process Alarm is adjustable from 0 to 100% of span. Deviation Alarm and Deviation Band Alarms are adjustable about setpoint over the entire instrument span. Switching action can be changed by moving a jumper on the Alarm Board. Alarm Deadband is fixed at .5% of span.

Spread Output 2 Setpoint can be set from −511 to +511 digits about Output 1 Setpoint. Output 2 Deadband is fixed at .5% of span.

Load Lineout Adjustable from 0 to 99% in steps of 1%.

Output 1 Limit Adjustable from 10 to 100% in steps of 10%.

Cycle Time Adjustable from 1 to 64 seconds in steps of 1, 2, 4, 8, 16, 32 and 64 seconds.

Deadband Adjustable from .25% to 1% of span in steps of .25, .50, .75 and 1.

Manual Reset 0 to 99% in steps of 1%.

SPECIAL FEATURES
Insert 00 for None

CONTROL MODE
1 = ON-OFF (only with Options 1 and 2 of either Output 1 or Output 2)
2 = Proportional with Manual Reset
4 = Proportional, Reset, and Rate

OUTPUT 1
1 = Triac
2 = Relay
3 = 4 to 20 mAdc, reverse acting
4 = 0 to 10 mAdc, reverse acting
5 = 0 to 10 Vdc, reverse acting

OUTPUT 2
0 = None
1 = Triac, ON-OFF
2 = Relay, ON-OFF (not available when Output 1, Option 2 is ordered)

SETPOINT
2 = Internal Setpoint. This option includes the SETPOINT, INCREASE, and DECREASE Keys

DISPLAYS
1 = Digital Process Meter with Display Setpoint on Command
2 = Display Option 1 and Deviation Bar Meter
3 = Display Option 2 and a Second Digital Meter for Setpoint and Percent Output

DEVIATION BAR CALIBRATION

Option Number	Scale	Each Scale Division
0 =	None	Use with Display Option 1
2 =	±24	1 (For spans less than 999)
3 =	±48	2 (For spans less than 1999)
4 =	±120	5
5 =	±240	10
6 =	±480	20

HOUSINGS
0 = Panelmount (Standard)
1 = Without Housing (Order A-12044 Housing)

ALARMS
0 = None
1 = Dual Process Alarms
2 = Dual Deviation Band Alarms
3 = Dual Deviation Alarms
4 = Deviation Alarm and Deviation Band Alarm
5 = Deviation Alarm and Process Alarm
6 = Deviation Band Alarm and Process Alarm

THERMOCOUPLE RANGE CODE TABLE

Range	Code Number for Range and Thermocouple										
	J	K	T	S	R	B	C	G	F	Ni/Ni Mo	W3/W25
– 350 to 400°F			202								
– 350 to 200°F			201								
– 300 to 300°F			203								
– 200 to 200°F	009										
– 150 to 400°F			204								
0 to 300°F	011										
0 to 400°F	012		205								
0 to 600°F	015										
0 to 700°F			205								
0 to 800°F	016										
0 to 1000°F	017	034									
0 to 1200°F	018	042									
0 to 1600°F	019	029									
0 to 2000°F	020	030									
0 to 2200°F									252	250	
0 to 2500°F		031									
1000 to 2500°F				041	039						
0 to 3000°F				036	038			116			120
0 to 3300°F						101					
1000 to 3000°F						102					122
0 to 4200°F							110	115			
– 200 to 400°C			209								
– 200 to 200°C			207								
– 200 to 100°C			208								
– 150 to 150°C	010	013									
– 100 to 300°C			211								
– 100 to 100°C			210								
0 to 200°C	023		212								
0 to 300°C	021										
0 to 400°C	022		213								
0 to 600°C	024	036									
0 to 800°C	025	032									
0 to 1000°C		033									
0 to 1200°C										251	
0 to 1400°C		035									
0 to 1600°C				037							121
0 to 1800°C						103					
0 to 2000°C							111				
0 to 2200°C							112				
0 to 2300°C								117			

SYMBOLS FOR THERMOCOUPLE WIRE

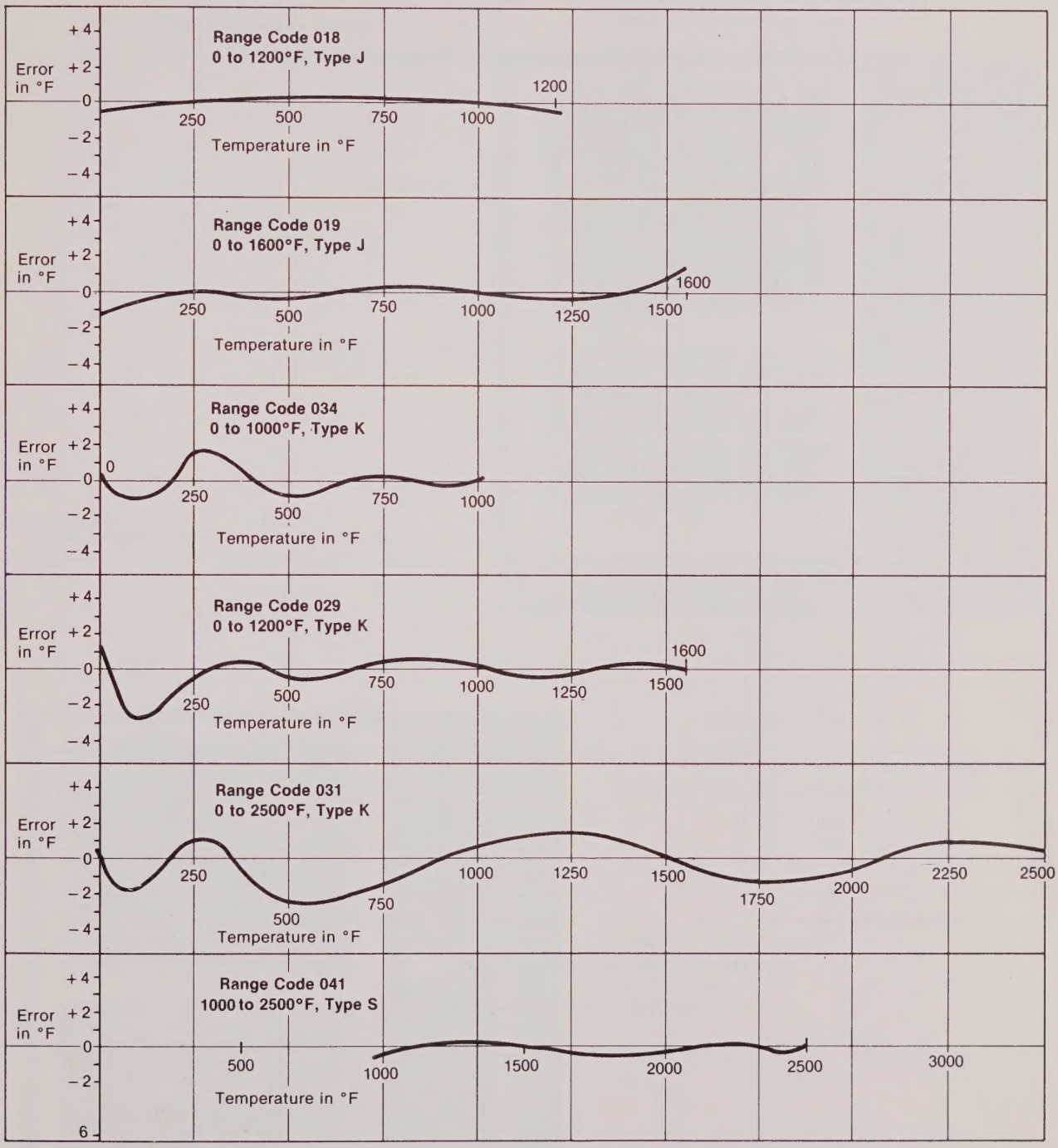
ANSI Symbol	Wire Combination
J	Iron-Constantan
K	Chromel-Alumel* Tophel-Nial** T1-T2***
T	Copper-Constantan
S	Platinum, 10% Rhodium-Platinum
R	Platinum, 13% Rhodium-Platinum
B	Platimum, 30% Rhodium-Platinum, 6% Rhodium

Barber-Colman Symbol	Wire Combination
C	Tungsten, 5% Rhenium — Tungsten, 26% Rhenium
G	Tungsten — Tungsten, 26% Rhenium
F	Platinel 5355 — Platinel 7674 (Platinel II****)
W3/W25	Tungsten, 3% Rhenium — Tungsten, 25% Rhenium
Ni/Ni Mo	Nickel — Nickel, 18% Molybdenum

TRADEMARKS
* Hoskins Mfg. Co.
** W.B. Driver Co.
*** Driver Harris Co.
**** Engelhard Industries

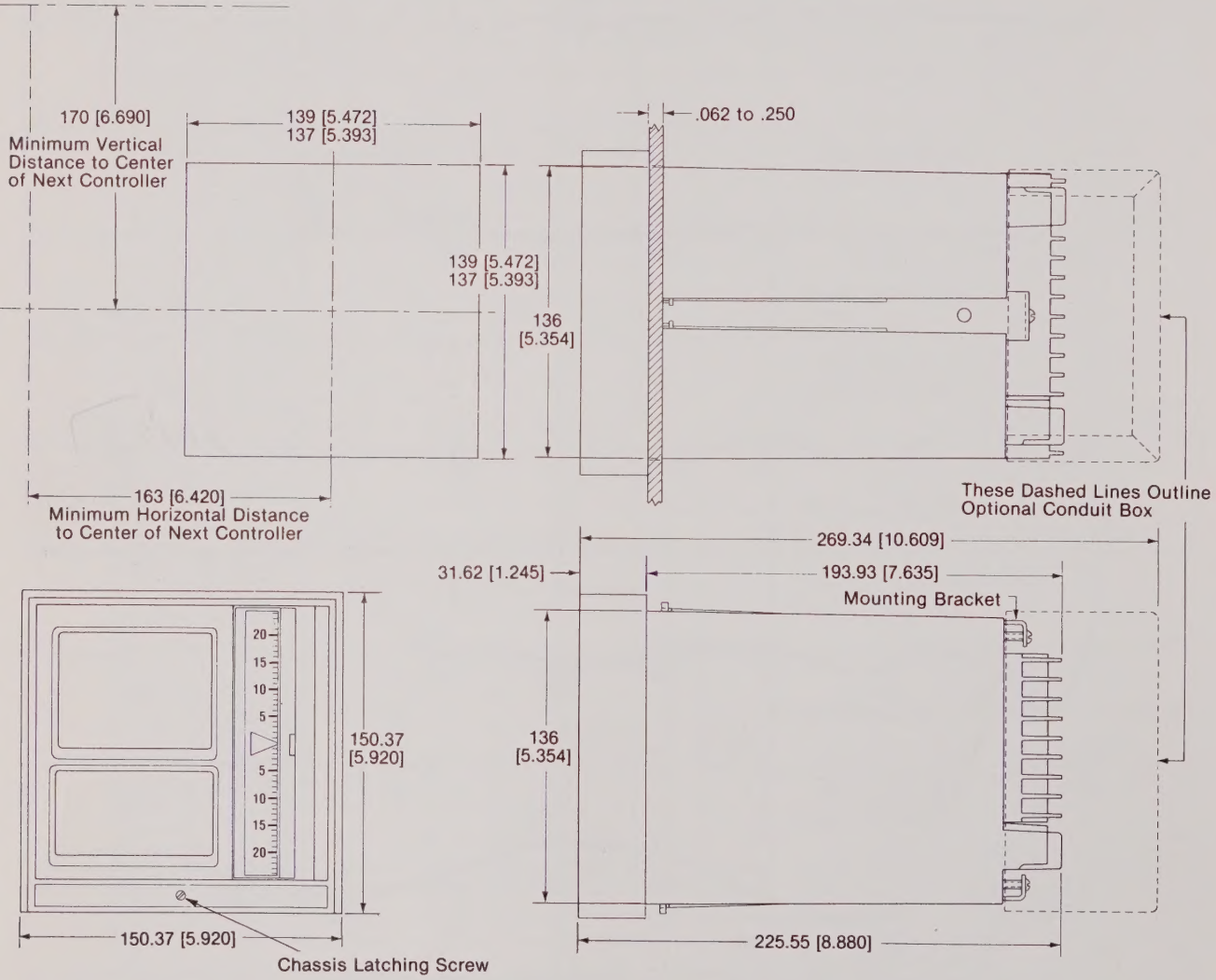
CONFORMAL ERROR VERSUS TEMPERATURE

Consult Factory for Ranges not shown



MOUNTING DIMENSIONS

Dimensions are in Millimeters with Inches following in brackets.

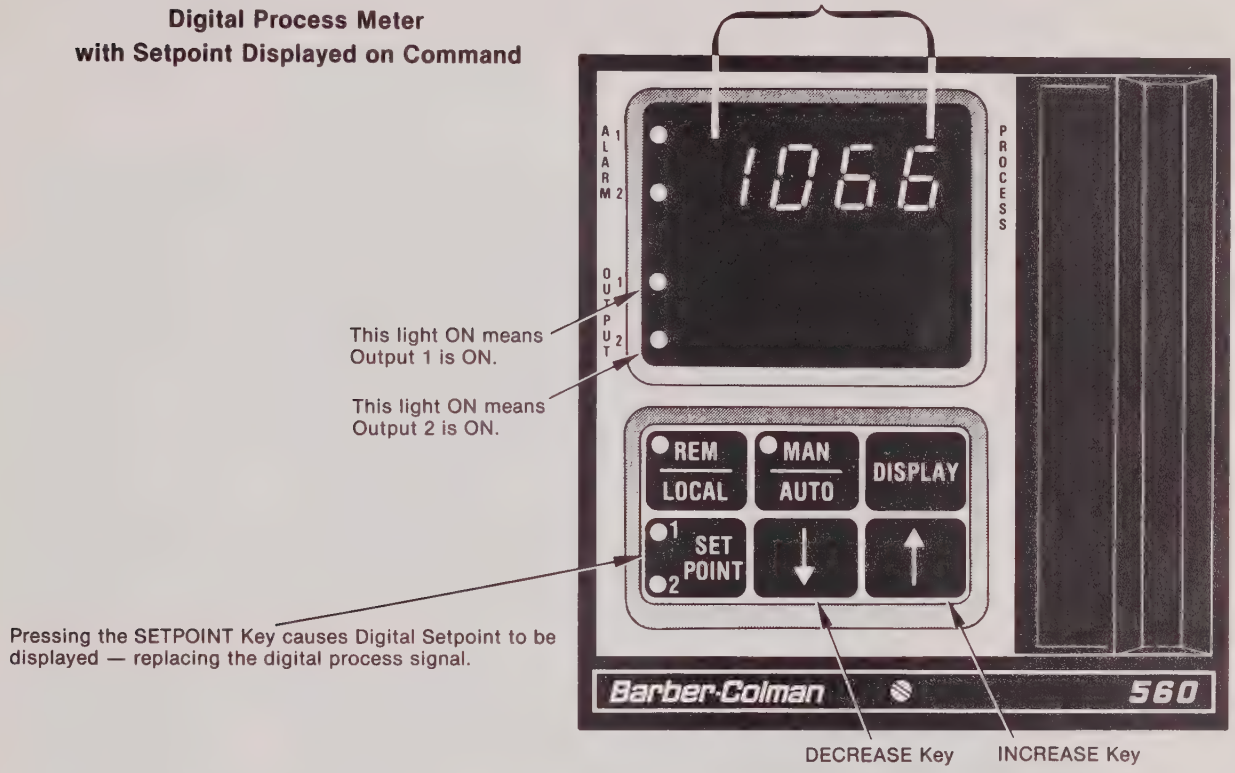


Panel Cutout in Accordance with DIN 43700

DISPLAY OPTIONS and DEVIATION BAR CALIBRATION OPTIONS

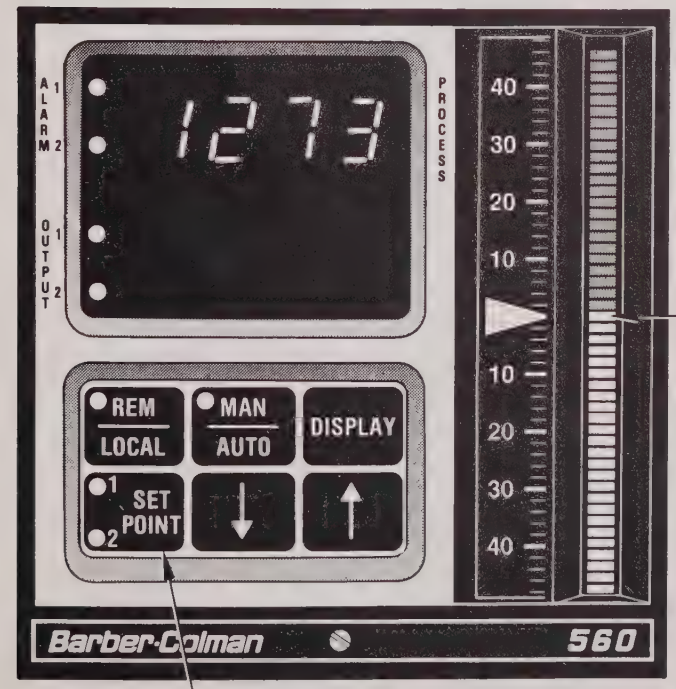
DISPLAY OPTION 1

Digital Process Meter with Setpoint Displayed on Command


Four .55" High Red Digit Display
Process Variable Display changes to Setpoint Display when the SETPOINT Key is depressed.
ALARM 1 2
OUTPUT 1 2
PROCESS
1066
This light ON means Output 1 is ON.
This light ON means Output 2 is ON.
REM LOCAL
MAN AUTO
DISPLAY
1 2 SET POINT
Pressing the SETPOINT Key causes Digital Setpoint to be displayed — replacing the digital process signal.
Barber-Colman
560
DECREASE Key
INCREASE Key

DISPLAY OPTION 2

Digital Process Meter with Setpoint Displayed on Command and Deviation Bar Meter

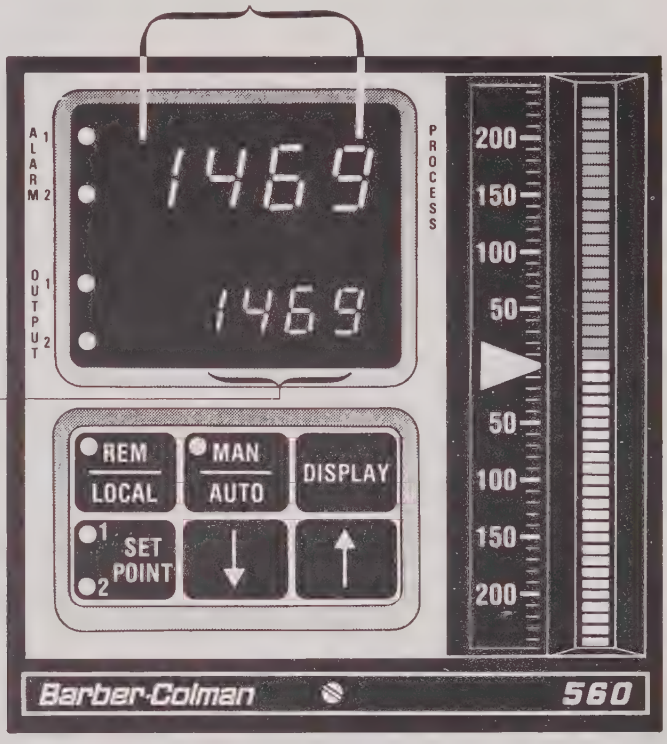


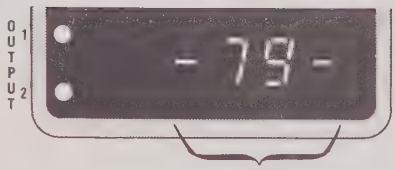
DISPLAY OPTION 3

Digital Process Meter, Deviation Bar Meter, and a Second Digital Meter for Setpoint and Percent Output

Top Indicator shows only Process Variable

BOTTOM DISPLAY
Alternately press DISPLAY Key to obtain either Setpoint Display or Percent Output Display





Typical Percent Output Display

ALARM OPTIONS

Alarm 1 and Alarm 2 may be any combination of the following types: Process Alarm, Deviation Alarm, or Deviation Band Alarm.

The Process Alarm and the Deviation Alarm are shipped set to trip on an increasing process signal (alarm relay energizes above alarm setpoint) but can be jumper changed to trip on a decreasing process signal.

Process Alarm: Adjustable from 0 to 100% of span.

Deviation Alarm: Adjustable ±511 digits about setpoint.

Deviation Band Alarm: Alarm band either side of setpoint up to 511 digits. Shipped to alarm outside the Deviation Band (alarm relay energizes when the alarm setpoint is exceeded in either direction). Can be jumper changed to alarm inside the Deviation Band.

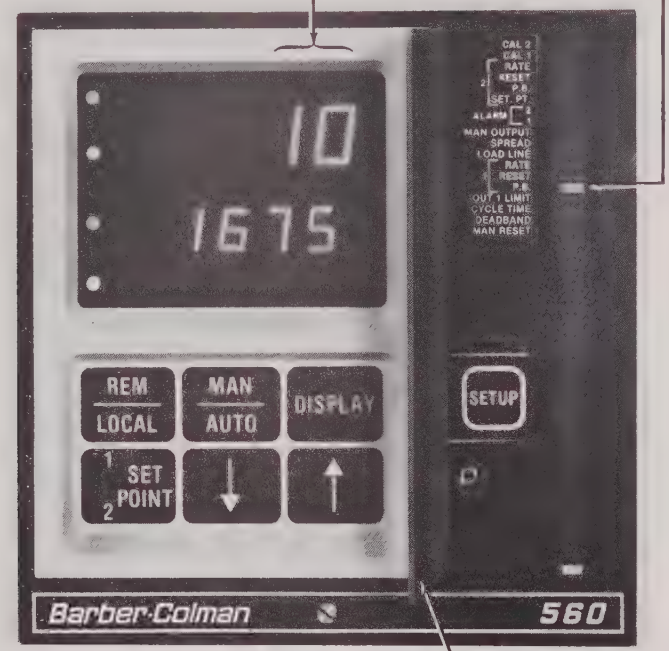
Alarm Relay Contact Ratings: Form C Contacts, 1 Ampere at 120Vac, resistive load.

Alarm Relay Deadband: .5% of span.

NO blind settings

Digital readout of Tuning Constants on Top Display gives 1 digit setability and repeatability — no more guessing at potentiometer settings!

In the SETUP Mode the LED bar opposite P.B. means that the Proportional Band Tuning Constant 10 is displayed on the top indicator. The Proportional Band can be changed by pressing either the ↑ or ↓ Keys.

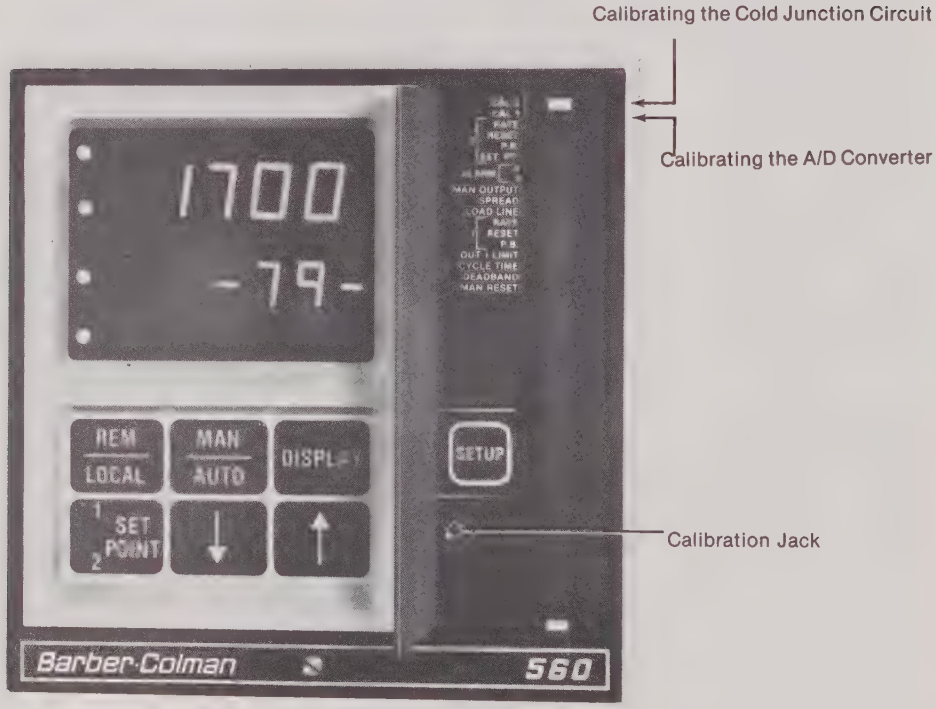


Door Swung Open to Show Tuning Constants.

CALIBRATION

- ☐ NO calibrated resistors and range cards.
- ☐ NO internal calibration adjustments.
- ☐ NO unplugging of instrument for calibration.

Calibration is from the front of the controller using the Calibration Jack. Compensating thermocouple extension leadwire is not required. All adjustments are made through the keyboard, eliminating the need for internal calibration adjustments and for pulling the controller from its case. The digital display eliminates all guesswork from the calibration procedure.



Barber-Colman Company
INDUSTRIAL INSTRUMENTS DIVISION
1700 Rock Street, Rockford, Illinois, U.S.A., 61101

560 SERIES MICROPROCESSOR CONTROLLERS

Effective July 20, 1979

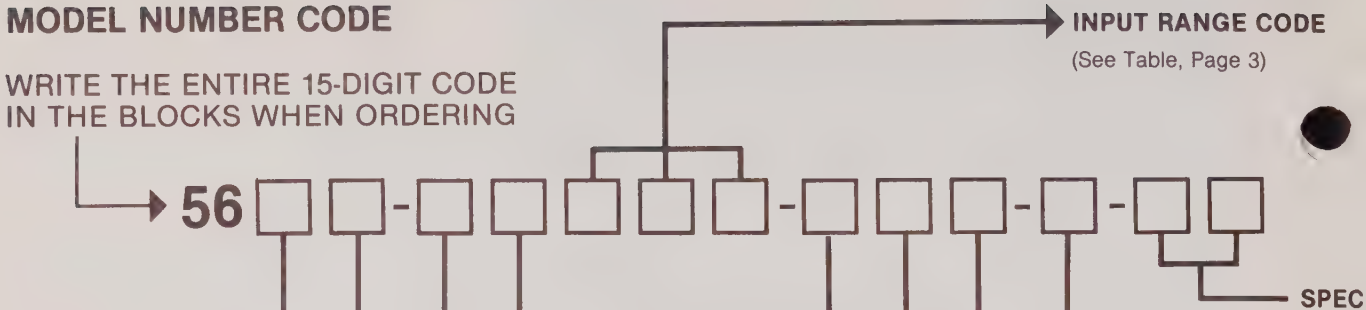
Reference Data Bulletin 1253/DB 1

MODEL	PRODUCT CODE	DESCRIPTION	BASE PRICE
		Single Switching Output Controllers	
5611-0	6B0	ON-OFF Output, Triac	382.00
5612-0	6B1	ON-OFF Output, Relay	390.00
5621-0	6B2	Time Proportioning Output, Proportional, Triac	382.00
5622-0	6B3	Time Proportioning Output, Proportional, Relay	390.00
5641-0	6B4	Time Proportioning Output; Proportional, Reset, and Rate Actions	407.00
5642-0	6B5	Time Proportioning Output; Proportional, Reset, and Rate Actions	415.00
		Single, Reverse Acting, Current and Voltage Outputs, Field Adjustable to Direct Action	
5623-0	6C0	4-20mAdc Output, Proportional Action	433.00
5624-0	6C1	0-10mAdc Output, Proportional Action	433.00
5625-0	6C2	0-10Vdc Output, Proportional Action	433.00
5643-0	6C3	4-20mAdc Output, Proportional, Reset, and Rate Actions	458.00
5644-0	6C4	0-10mAdc Output, Proportional, Reset, and Rate Actions	458.00
5645-0	6C5	0-10Vdc Output, Proportional, Reset, and Rate Actions	458.00
		Dual Output, General Purpose Controllers with ON-OFF Switching	
		Output 1, ON-OFF Output — **Output 2, ON-OFF Outputs**	
5611-1	6D0	Triac — Triac	400.00
5612-1	6D1	Relay — Triac	408.00
5611-2	6D2	Triac — Relay	408.00
		Output 1, Time Proportioning Output	
5621-1	6D3	Triac — Triac	400.00
5622-1	6D4	Relay — Triac	408.00
5621-2	6D5	Triac — Relay	408.00
5641-1	6D6	Triac; Proportional, Reset, and Rate Actions — Triac	425.00
5642-1	6D7	Relay; Proportional, Reset, and Rate Actions — Triac	435.00
5641-2	6D8	Triac; Proportional, Reset, and Rate Actions — Relay	435.00
		Output 1, Proportional Action	
5623-1	6F0	4-20mAdc — Triac	453.00
5624-1	6F1	0-10mAdc — Triac	453.00
5625-1	6F2	0-10Vdc — Triac	453.00
5623-2	6F3	4-20mAdc — Relay	461.00
5624-2	6F4	0-10mAdc — Relay	461.00
5625-2	6F5	0-10Vdc — Relay	461.00
		Output 1, Proportional, Reset, and Rate Actions	
5643-1	6F6	4-20mAdc — Triac	478.00
5644-1	6F7	0-10mAdc — Triac	478.00
5645-1	6F8	0-10Vdc — Triac	478.00
5643-2	6F9	4-20mAdc — Relay	486.00
5644-2	6G0	0-10mAdc — Relay	486.00
5645-2	6G1	0-10Vdc — Relay	486.00

The prices above are only for the basic instruments. To obtain the total price for a specific instrument refer to the model code on page 2 and add (or subtract) the prices of the options selected to the basic instrument price.

MODEL NUMBER CODE

WRITE THE ENTIRE 15-DIGIT CODE IN THE BLOCKS WHEN ORDERING



INPUT RANGE CODE
(See Table, Page 3)

SPECIA
Insert 00

CONTROL MODE

1 = ON-OFF (Only with Options 1 and 2 of either Output 1 or Output 2)

2 = Proportional with Manual Reset

4 = Proportional, Reset, and Rate

OUTPUT 1

1 = Triac

2 = Relay

3 = 4 to 20mAdc, reverse acting

4 = 0 to 10mAdc, reverse acting

5 = 0 to 10Vdc, reverse acting

OUTPUT 2

0 = None

1 = Triac, ON-OFF

2 = Relay, ON-OFF. Not available when Output 1, Option 2 is ordered.

SETPOINT

2 = Internal Setpoint. This Option 2 includes the SETPOINT, INCREASE, and DECREASE Keys.

DISPLAYS

1 = Digital Process Meter with Display Setpoint on Command . . . . . **Subtract $15.00**

2 = Display Option 1 and Deviation Bar Meter . . . . . **Standard**

3 = Display Option 2 and a Second Digital Meter for Setpoint and Percent Output **$25.00**

ALARMS

0 = None . . . . . .

1 = Dual Process Alarms . . . . . .

2 = Dual Deviation Band Alarms . . .

3 = Dual Deviation Alarms . . . . . .

4 = Deviation Alarm and Deviation Band Alarm . . . . . .

5 = Deviation Alarm and Process Alarm . . . . . .

6 = Deviation Band Alarm and Process Alarm . . . . . .

HOUSINGS

0 = Panelmount . . . . . .

1 = Without Housing . . . . . (Order A-12044 separate from last page)

DEVIATION BAR CALIBRATION

Option Number		Scale	Each Scale Division
0	=	None	Use with Display Option 1
2	=	±24	1 (For Spans less than 999)
3	=	±48	2 (For Spans less than 1999)
4	=	±120	5
5	=	±240	10
6	=	±480	20

DISCOUNT SCHEDULE: E5

WHEN ORDERING: WRITE THE COMPLETE 15-DIGIT MODEL NUMBER. ADD BASE PRICE PLUS DISPLAY AND ALARM OPTION ADDERS TO OBTAIN TOTAL INSTRUMENT PRICE.

FEATURES
r None

ADDER
. Standard
. . . . $50.00
. . . . 50.00
. . . . 50.00
. . . . 50.00
. . . . 50.00
. . . . 50.00

. . . . . Standard
. Subtract $25.00

THERMOCOUPLE RANGE CODE TABLE

Range	Code Number for Range and Thermocouple										
	J	K	T	S	R	B	C	G	F	Ni/Ni Mo	W3/W25
– 350 to 400°F			202								
– 350 to 200°F			201								
– 300 to 300°F			203								
– 200 to 200°F	009										
– 150 to 400°F			204								
0 to 300°F	011										
0 to 400°F	012		205								
0 to 600°F	015										
0 to 700°F			205								
0 to 800°F	016										
0 to 1000°F	017	034									
0 to 1200°F	018	042									
0 to 1600°F	019	029									
0 to 2000°F	020	030									
0 to 2200°F									252	250	
0 to 2500°F		031									
1000 to 2500°F				041	039						
0 to 3000°F				036	038			116			120
0 to 3300°F						101					
1000 to 3000°F						102					122
0 to 4200°F							110	115			
– 200 to 400°C			209								
– 200 to 200°C			207								
– 200 to 100°C			208								
– 150 to 150°C	010	013									
– 100 to 300°C			211								
– 100 to 100°C			210								
0 to 200°C	023		212								
0 to 300°C	021										
0 to 400°C	022		213								
0 to 600°C	024	036									
0 to 800°C	025	032									
0 to 1000°C		033									
0 to 1200°C										251	
0 to 1400°C		035									
0 to 1600°C				037							121
0 to 1800°C						103					
0 to 2000°C							111				
0 to 2200°C							112				
0 to 2300°C								117			

SYMBOLS FOR THERMOCOUPLE WIRE

ANSI Symbol	Wire Combination
J	Iron-Constantan
K	Chromel-Alumel* Tophel-Nial** T1-T2***
T	Copper-Constantan
S	Platinum, 10% Rhodium-Platinum
R	Platinum, 13% Rhodium-Platinum
B	Platimum, 30% Rhodium-Platinum, 6% Rhodium

Barber-Colman Symbol	Wire Combination
C	Tungsten, 5% Rhenium — Tungsten, 26% Rhenium
G	Tungsten — Tungsten, 26% Rhenium
F	Platinel 5355 — Platinel 7674 (Platinel II****)
W3/W25	Tungsten, 3% Rhenium — Tungsten, 25% Rhenium
Ni/Ni Mo	Nickel — Nickel, 18% Molybdenum

TRADEMARKS
* Hoskins Mfg. Co.
** W.B. Driver Co.
*** Driver Harris Co.
**** Engelhard Industries

ACCESSORIES

Part Number	Product Code	Description	Discount Schedule	Price
24-48	699	Calibration Cable Assembly	A1	**$10.00**
A-12044-100	6M6	Single Housing	See below	**$25.00**

Housing Discount Schedule: E5 when ordered with instruments for separate shipment (use quantity of instruments for discount). C1 when ordered as a replacement part.

SHIPPING WEIGHTS

560 Series Without Housing: 1.3kg (3 pounds)
Housing Only: 1.3kg (3 pounds)

All Prices F.O.B. Factory, Rockford, Illinois — Subject to Change Without Notice. Consult Factory on Charges for Export and Special Packing. Sales, Excise, or other Government Taxes or Assessments will be added to the prices shown in this list.

Barber-Colman Company
INDUSTRIAL INSTRUMENTS DIVISION
1700 Rock Street, Rockford, Illinois, U.S.A., 61101

LITHO IN U.S.A.

A New Concept in Industrial Heat Control.....

560 Process Controller

The new Barber-Colman Model 560 Process Controller is not a repackaged analog controller. It is an all new **single-loop, microprocessor-based** controller, loaded with features you would expect to find in a much more expensive unit:

- **Tuning constants digitally displayed and easily changed by keyboard entry.**
- **Digital readout of setpoint, process temperature or other measured control variable is standard feature.**
- **Wide range of outputs available...Relay, Solid State Switching, Proportional Voltage and Current, Valve Proportioning and Dual Output.**
- **Large, easy-to-read Deviation Indicator provides instant process status.**
- **All standard control modes...ON-OFF, proportional and PID.**
- **Microprocessor has low heat dissipation which permits operation in ambients up to 130°F with no deviation from rated accuracy.**
- **Reference accuracy is 0.25% of reading... ± 1 digit.**
- **All keyboard entries are stored in non-volatile solid state memory which requires no battery backup.**

Barber-Colman Model 560 Controller has been engineered to provide superior performance in virtually any industrial environment. Gasketed, dust-tight front panel and case combined with sealed switches assure trouble-free operation. The 560, with DIN cutout dimensions, fits easily into many existing panel cutouts for fast retrofit.

BARBER COLMAN COMPANY

1253/DB 1

LITHO IN U.S.A.

Sales and Service Offices

Albuquerque 505/242-9913 Industrial Electric & Equipment Services, Inc.
Appleton 414/739-4247 Pyro-Matic, Inc.
Atlanta 404/633-2566
Baltimore/Washington, D.C. 301/681-9181
Baton Rouge 504/686-7249 Allen & Associates
Birmingham 404/633-2566
Boston 617/828-9496
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Charleston, W.V. 304/766-6153 Chemac Co.
Charlotte 704/372-5492
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Milwaukee 414/781-2222 Pyro-Matic, Inc.
Minneapolis/St. Paul 612/633-6450 Pyro-Matic, Inc.
Montreal 514/631-9064
New Haven, Ct. Toll Free 800/631-0795
New York City Toll Free 800/631-0795
New Jersey State 201/845-8607
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San Diego 714/697-1925
San Francisco 415/254-4616 Sharman, Inc.
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Seattle 206/883-4999 Sales and Engineering Associates
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Syracuse 315/437-6666 Ossman Instruments
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Vancouver 604/278-4511 Instrument Service Labs

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